



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR     | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|--------------------------|---------------------|------------------|
| 09/834,492      | 04/13/2001  | Gerardus Johannes Burger | 3813.03             | 3568             |

22337 7590 06/27/2002

LAW OFFICES OF CHARLES GUENZER  
P O BOX 60729  
PALO ALTO, CA 94306

EXAMINER

RAHLL, JERRY T

ART UNIT PAPER NUMBER

2874

DATE MAILED: 06/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |                                      |  |
|------------------------------|--------------------------------------|--------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>09/834,492 | <b>Applicant(s)</b><br>BURGER ET AL. |  |
|                              | <b>Examiner</b><br>Jerry T Rahl      | <b>Art Unit</b><br>2874              |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16, 18 and 19 is/are rejected.
- 7) ☒ Claim(s) 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                    | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____.  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                           | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3,4</u> . | 6) <input type="checkbox"/> Other:  |

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file. *Drawings*
2. The drawings are objected to because the drawings do not have clear markings and numbering and the lines are not even. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
5. Claims 1 and 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,923,480 to Labeye.

6. Labeye describes an optical switching device formed on a substrate (3) having a deformable mechanical element (6,8), an refractive optical element (4) on the mechanical element providing transmission therethrough to light incident thereupon into directions substantially normal to the principal surface and electrical control elements (12, 14, 16, 18) for deforming the mechanical elements and selecting the direction (see Figures 1-7, Col 4 Ln 29-Col 5 Ln 55 and Col 7 Lns 12-19). Labeye further describes the electrical control elements as comprising electrodes with a void between them, with at least one of the electrodes fixed to the mechanical element. Labeye further describes a plurality of the optical switching devices distributed in the substrate.

7. Labeye does not specifically describe the optical element as diffractive. However, it is well-known in the art that some lenses have diffractive properties useful in altering the direction of an optical signal. Therefore, it would have been obvious to one of ordinary skill in the art to use a diffractive lens with the device described by Labeye to allow for further alteration of the signal direction.

8. Labeye does not specifically describe a plurality of optical devices distributed two-dimensionally in the substrate. However, Labeye does describe multiple devices distributed in the plane of the devices. Since a plane has two-dimensions, it would have been obvious to one of ordinary skill in the art that the plurality of devices described by Labeye may be distributed in two-dimensions on the substrate to allow for better concentration or packaging issues.

9. Claims 8-11 and 13-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Labeye as applied to claims 1 and 4-5 above, and further in view of WPO Patent No. WO 00/79311 to Abushagur.

Art Unit: 2874

10. Labeye describes optical switching devices on a substrate as described above. Labeye does not describe a first plurality of the devices and a second plurality of the devices bonded together to allow a beam of light to be transmitted through optical elements on both substrates.

11. Abushagur describes two pluralities of optical switching devices where the position of a mechanical element in the first plurality through which the beam passes determines which of the mechanical elements in the second plurality the beam passes. While Abushagur does not describe the pluralities of devices on two substrates bonded together, it would have been obvious to one of ordinary skill in the art to bond two opposing substrates with the optical devices described by Labeye to achieve a selective switching system as described by Abushagur.

12. The method described by Claim 15 is embodied by the system described by Labeye and Abushagur above.

13. Labeye describes the use of photolithography which is a common microelectromechanical fabricating technique.

14. Labeye and Abushagur do not describe the substrate bonding as occurring after the fabricating step. However, it would have been obvious to one of ordinary skill in the art that performing the bonding step after the fabrication step would be easier due to the intricate nature of the fabrication step.

15. Labeye and Abushagur do not specifically describe the use of lithography, etching, sputtering or chemical vapor deposition. However, it is well-known in the art that these techniques are commonly used into manufacture MEMS devices or electrodes. Therefore, it would have been obvious to one of ordinary skill in the art to use such techniques in the fabrication of the optical devices to save time, money or space.

Art Unit: 2874

16. Claims 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Labeye and Abushagur as applied to claims 1 and 10 above, and further in view of U.S. Patent No. 5,912,608 to Asada. Labeye and Abushagur describe an optical switching system using optical switching devices as described above. Labeye and Abushagur do not describe the mechanical element as including a plate supporting the optical element and being supported by two torsion bars. Asada describes a mechanical element including a plate supporting an optical element and being supported by two torsion bars (see Figures 1-2 and Col 3 Ln 62- Col 4 Ln 65). It would have been obvious to one of ordinary skill in the art to modify the Labeye device to include the mechanical plate structure of Asada to retain the planar characteristic of the device while gaining control of the device movement in two directions instead of one.

***Allowable Subject Matter***

17. Claim 17 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 17 describes bonding the two substrates together before fabricating the optical devices. This is not described by the prior art of record.

***Conclusion***

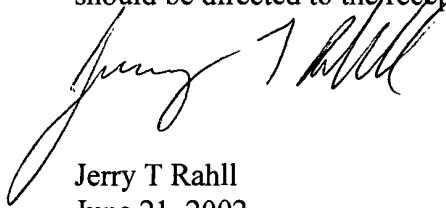
18. The prior art documents submitted by applicant in the Information Disclosure Statements filed December 7, 2001 and January 18, 2002 have all been considered and made of record (note the attached copy of form PTO-1449).

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry T Rahll whose telephone number is (703) 306-0031. The examiner can normally be reached on M-F (8:00-5:30), with alternate Fridays off.

Art Unit: 2874

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (703) 308-4819. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Jerry T Rahll  
June 21, 2002



Akm E. Ullah  
Primary Examiner